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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,206	09/24/2003	Mahesh R. Junnarkar	ITL.0995 (P16440)	2629
21906	7590	11/29/2004	EXAMINER CHIAM, DINH D	
TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024			ART UNIT 2883	PAPER NUMBER

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/669,206

Applicant(s)

JUNNARKAR ET AL.

Examiner

Erin D Chiem

Art Unit

2883



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-24 is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-17 is/are rejected.
- 7) ☒ Claim(s) 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-9, 10 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohira et al. (US 2004/0202419 A1) in view of Ho et al. (US 2003/0228103 A1). Regarding claims 1-9, Ohira et al. discloses a dispersion compensator comprises of a waveguide and a temperature controller comprising of heaters that create a linear temperature gradient to the chirped grating [0006] formed on a substrate (Fig. 1B, 4). Also, Ohira et al. disclose that a planar lightwave circuit may be used in place of the optical fiber ([0041], last sentence). In Fig. 1B, Ohira et al. show that the thin film heater is generally in the same configuration as the waveguide and directly below the waveguide. However, Ohira et al. do not disclose employing heaters to an arrayed waveguide grating having the arrayed waveguide grating on the "first side" of the planar lightwave circuit and forming the heaters on the opposite side of the planar lightwave circuit. Ho et al. disclose an arrayed waveguide grating having an arrangement of heaters to alter the phase of a signal (claims 5, 7, and 9) for the purpose of compensating dispersion in high bandwidth optical telecommunication. Furthermore, from Figure 1, Ho et al. show the thermal pads (22) are directly below the waveguides. Since planar lightwave circuits are substantially a thin film, from Figure 1 of Ho et al. disclosure, one can see that the thermal pads are on the opposite side of

Art Unit: 2883

the planar lightwave circuit. Since Ohira et al and Ho et al. are both from the same field of endeavor, the purpose Ho et al. would have been recognized in the pertinent art of Ohira et al. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to arrange plurality of heaters to multiple waveguides and the most efficient mean of doing so would be to arrange plurality of heaters onto an array of waveguides that form the arrayed waveguide gratings to compensate the dispersion.

3. Regarding claims 6-8, without further details in the applicant's specification and drawings, the examiner interpret the laser fusable link (26) as a redundant system built-in to anticipate failures to the heaters. Such redundant systems are well known in the optical waveguide art.

4. Regarding claims 10, 13 – 17, Ohira et al. disclose a dispersion compensator comprises of a waveguide and a temperature controller comprising of heaters that create a linear temperature gradient to the chirped grating [0006] formed on a substrate (Fig. 1B, 4). Also, Ohira et al. disclose that a planar lightwave circuit may be used in place of the optical fiber ([0041], last sentence). However, Ohira et al. do not disclose implementing heaters to an arrayed waveguide grating having the arrayed waveguide grating on the “first side” of the planar lightwave circuit and forming the heaters on the opposite side of the planar lightwave circuit. Ho et al. disclose an arrayed waveguide grating having an arrangement of heaters to alter the phase of a signal (claims 5, 7, and 9) for the purpose of compensating dispersion in high bandwidth optical telecommunication. Furthermore, from Figure 1, Ho et al. show the thermal pads (22)

Art Unit: 2883

are directly below the waveguides. Since planar lightwave circuit is substantially a thin film, from Figure 1 of Ho et al. disclosure, one can see that the thermal pads are on the opposite side of the planar lightwave circuit. Since Ohira et al and Ho et al. are both from the same field of endeavor, the purpose Ho et al. would have been recognized in the pertinent art of Ohira et al. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to arrange plurality of heaters to multiple waveguides and the most efficient mean of doing so would be to arrange plurality of heaters onto an array of waveguides that form the arrayed waveguide gratings to compensate the dispersion.

5. Regarding claim 16, the lesser number of heaters compares to the number waveguides is a design variation. It would have been obvious to a person having ordinary skill in the art to modify the ratio of heaters to waveguides for engineering constraints (i.e., size, cost).

6. Regarding claim 17, without further details in the applicant's specification and drawings, the examiner interpret the laser fusable link (26) as a redundant system built in to anticipate failures to the heaters. Such redundant systems are well known in the optical waveguides art.

***Allowable Subject Matter***

7. Claim 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 18-24 are allowed.

**Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem  
Examiner  
Art Unit 2883

edc

  
**Brian Healy**  
**Primary Examiner**